1. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{12x^3 - 25x^2 - 18x + 40}{16x^2 + 32x + 15}$$

   A. Holes at $x = -0.75$ and $x = -1.25$ with no vertical asymptotes.

   B. Vertical Asymptote of $x = 0.75$ and hole at $x = -1.25$

   C. Vertical Asymptotes of $x = -0.75$ and $x = -1.25$ with no holes.

   D. Vertical Asymptote of $x = -0.75$ and hole at $x = -1.25$

   E. Vertical Asymptotes of $x = -0.75$ and $x = 1.333$ with a hole at $x = -1.25$

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2. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{9x^3 - 12x^2 - 20x + 16}{9x^2 - 18x + 8}$$

   A. Vertical Asymptote of $x = 1.333$ and hole at $x = 0.667$

   B. Holes at $x = 1.333$ and $x = 0.667$ with no vertical asymptotes.

   C. Vertical Asymptotes of $x = 1.333$ and $x = 0.667$ with no holes.

   D. Vertical Asymptotes of $x = 1.333$ and $x = -1.333$ with a hole at $x = 0.667$

   E. Vertical Asymptote of $x = 1.0$ and hole at $x = 0.667$

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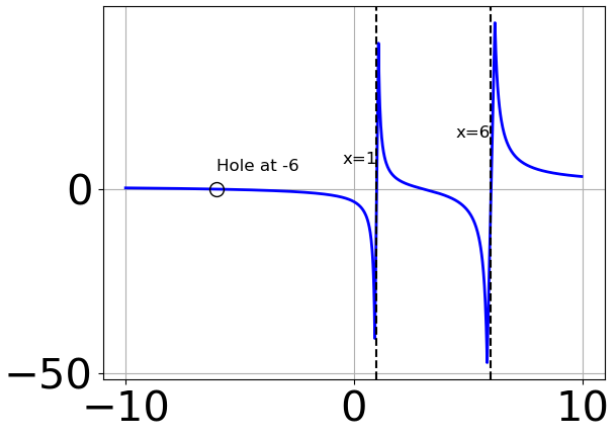
3. Which of the following functions *could* be the graph below?



A. $f(x) = \dfrac{x^3 - 37.0x - 84.0}{x^3 + x^2 - 36.0x - 36.0}$

B. $f(x) = \dfrac{x^3 - 37.0x + 84.0}{x^3 - 1.0x^2 - 36.0x + 36.0}$

C. $f(x) = \dfrac{x^3 + 10.0x^2 + 3.0x - 126.0}{x^3 - 1.0x^2 - 36.0x + 36.0}$

D. $f(x) = \dfrac{x^3 - 10.0x^2 + 3.0x + 126.0}{x^3 + x^2 - 36.0x - 36.0}$

E. None of the above are possible equations for the graph.

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4. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{3x^2 + 16x + 16}{9x^3 - 36x^2 - 16x + 64}$$

A. Oblique Asymptote of $y = 3x - 28$.

B. Horizontal Asymptote of $y = 0.333$ and Oblique Asymptote of $y = 3x - 28$

C. Horizontal Asymptote at $y = -4.000$

D. Horizontal Asymptote of $y = 0$

E. Horizontal Asymptote of $y = 0.333$

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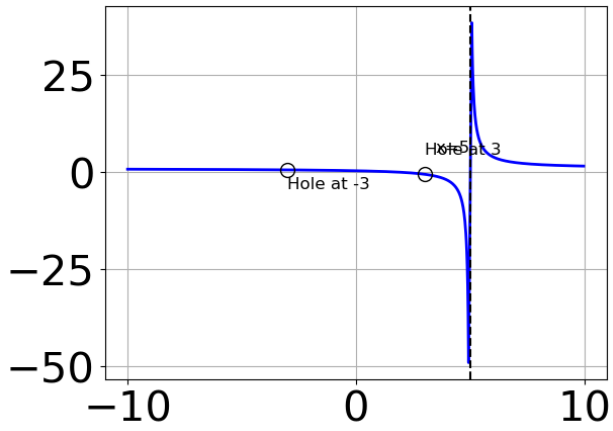
5. Which of the following functions *could* be the graph below?



A. $f(x) = \dfrac{x^3 + 7.0x^2 + 4.0x - 12.0}{x^3 + 5.0x^2 - 9.0x - 45.0}$

B. $f(x) = \dfrac{x^3 + 2.0x^2 - 9.0x - 18.0}{x^3 + 5.0x^2 - 9.0x - 45.0}$

C. $f(x) = \dfrac{x^3 + x^2 - 16.0x + 20.0}{x^3 - 5.0x^2 - 9.0x + 45.0}$

D. $f(x) = \dfrac{x^3 - 2.0x^2 - 9.0x + 18.0}{x^3 - 5.0x^2 - 9.0x + 45.0}$

E. None of the above are possible equations for the graph.

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6. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{16x^3 - 72x^2 + 17x + 60}{8x^2 - 14x - 15}$$

A. Vertical Asymptotes of $x = 2.5$ and $x = -0.75$ with no holes.

B. Vertical Asymptotes of $x = 2.5$ and $x = 1.25$ with a hole at $x = -0.75$

C. Vertical Asymptote of $x = 2.0$ and hole at $x = -0.75$

D. Vertical Asymptote of $x = 2.5$ and hole at $x = -0.75$

E. Holes at $x = 2.5$ and $x = -0.75$ with no vertical asymptotes.

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7. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{5x^2 - 29x + 20}{20x^3 + 49x^2 - 112x + 48}$$

A. Oblique Asymptote of $y = 4x + 33$.

B. Horizontal Asymptote of $y = 0$

C. Horizontal Asymptote of $y = 0.250$ and Oblique Asymptote of $y = 4x + 33$

D. Horizontal Asymptote of $y = 0.250$

E. Horizontal Asymptote at $y = 5.000$

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8. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{8x^3 - 6x^2 - 45x + 50}{12x^2 + 5x - 25}$$

A. Vertical Asymptote of $x = -1.667$ and hole at $x = 1.25$

B. Holes at $x = -1.667$ and $x = 1.25$ with no vertical asymptotes.

C. Vertical Asymptotes of $x = -1.667$ and $x = -2.5$ with a hole at $x = 1.25$

D. Vertical Asymptote of $x = 0.667$ and hole at $x = 1.25$

E. Vertical Asymptotes of $x = -1.667$ and $x = 1.25$ with no holes.

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9. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{6x^3 + 11x^2 - x - 6}{2x^2 + 11x + 12}$$

A. Horizontal Asymptote of $y = -4.0$ and Oblique Asymptote of $y = 3x - 11$

B. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 3x - 11$

C. Horizontal Asymptote at $y = -4.0$

D. Oblique Asymptote of $y = 3x - 11$.

E. Horizontal Asymptote of $y = 3.0$

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10. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{6x^3 - 23x^2 - 16x + 48}{3x^2 + 8x - 16}$$

A. Horizontal Asymptote of $y = -4.0$ and Oblique Asymptote of $y = 2x - 13$

B. Horizontal Asymptote at $y = -4.0$

C. Horizontal Asymptote of $y = 2.0$

D. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 2x - 13$

E. Oblique Asymptote of $y = 2x - 13$.
